

CELL BIOLOGY

ROLE OF EICOSANOIDS IN HUMAN PROSTATE CANCER CELL INVASION

R.C. Keller*, and K. Nithipatikom**

**Department of Biomedical Engineering, Marquette University, Milwaukee WI 53201*

***Department of Pharmacology and Toxicology, Medical College of Wisconsin, Milwaukee WI 53233*

****all correspondence should be directed to rckeller@mcw.edu*

ABSTRACT

Recently, the role of eicosanoids in prostate cancer metastasis has gained much attention in both basic and clinical research. Although the cyclooxygenase (COX) and lipoxygenase (LOX) metabolic pathways of arachidonic acid (AA) have been extensively studied, the role of cytochrome P450 enzyme (CYP) in cancer cell invasiveness is unknown. We are interested in the eicosanoid regulation of cancer cell invasion. Two sub-lines of human prostate cancer (PC-3) cells, unselected noninvasive (PC-3-U) cells and *in vitro* selected invasive (PC-3-S) cells were used in our model. The aim of this study was to characterize PC-3-U and PC-3-S cells by determining the expression of CYP enzymes and the endogenous AA metabolites. The techniques of immunofluorescence (IF) imaging and liquid chromatography – mass spectrometry (LC-MS) were used. Several antibodies specific to the CYP ω -hydroxylases were used to detect the presence and the relative expressions of these enzymes in the cells. The CYP metabolites of AA in these cells treated or untreated with CYP inhibitors were determined by LC-MS. The obtained results were correlated to the invasion of the cells. These studies will give insight into the role of CYP and its metabolites in regulating prostate cancer cell invasion.